

BOOK REVIEWS

Plant Ecology—Weaver and Clements¹

JOHN A. SMALL

The first edition of this book appeared in 1929, and seems to have passed unnoticed by TORREYA. Many Torrey Club members, particularly those who take their botany in the field, will find answers in the book to some of their queries. The first chapter deals with vegetation. It shows that the plant community is dynamic and subject to change and development. The next chapter is devoted to methods of studying vegetation to get quantitative data. The discussion is complete but somewhat conservative.

Many readers will have had the experience of returning after some years to an area only to find it quite changed, perhaps more delightful, perhaps disappointing. Such a change, if unmodified constitutes a normal succession, the subject of chapter 3. The authors then deal with the units of vegetation and the names by which they should be designated. This is a highly controversial matter among ecologists. The authors have stood by their own views, to which perhaps the majority of their American colleagues will subscribe. One wishes, however, that a term in as common usage as *synusia* had not been ignored, not to mention other terms. Some mention of the continental system of naming plant communities, if not a discussion of the various schools of phytosociological thought, would have tended toward completeness. Raunkiaer's life forms and biological spectrum are also omitted.

The fifth chapter deals with the initial causes of succession while the sixth treats the mechanics—migration, ecesis, and aggregation. This is properly followed by a discussion of competition and invasion. Economic, particularly agricultural and conservational, aspects of the subject are included. The soil receives a much more complete presentation than in the earlier edition. Modern concepts of soil science are recognized in some detail. The effect of the plant or community upon the habitat (reaction) and the ultimate dynamic equilibrium (stabilization)

¹ Plant Ecology. John E. Weaver and Frederick E. Clements. Second edition. McGraw-Hill Book Co. 1938. xxii-601 pp. illus. \$5.00.

are considered in chapter 9. The relationship between animals and plants is termed coaction but chapter 10 is largely a very laudable treatise of the application of ecological principles to conservation. The underground parts of plants are treated at length. Then follow chapters dealing with the aerial environment—humidity, wind, and evaporation; temperature; light. Chapter 15 is a brief discourse on the use of plants themselves (phytometers) in studying the environment. The chapter on adaptation to water gives a basic presentation of ecological plant anatomy. The fact that plants and plant communities are indicators of the condition of the habitat is brought out in chapter 17. The reader will experience little difficulty in mentally transposing this chapter into plants and communities with which he is familiar. The last chapter introduces the reader to plant geography by briefly describing the climax formations of North America.

The book is well illustrated throughout by examples, tables, charts, line drawings, and photographs. Many of the topics are accompanied by directions for experimental procedure, as they were in the first edition. A few paragraphs at the first of the book outline a course with field work as the authors themselves conduct it. There is a bibliography of 1,035 citations for those who desire further work in the subject.

Water Culture of Plants—Ellis and Swaney²

G. T. HASTINGS

Water culture in its various forms has attracted much attention in the last few years. Descriptions of culture solutions and methods of growing plants in them have appeared in various leaflets,—here we have a small book that attempts to give complete descriptions. The authors describe methods of growing plants in liquid and in sand or cinders irrigated with the solutions. The descriptions are evidently based on much experimental work done by the authors as well as work done experimentally or commercially by others. In addition one chapter is devoted to the effects of plant hormones in stimulating growth and the work of Dr. Blakeslee in developing new forms of double

² *Soilless Growth of Plants*. Carleton Ellis and Miller W. Swaney. 155 pages, 55 figures, 3 colored plates. Reinhold Publishing Corp. 1938. \$2.75.